

Atty Dkt. No.: 071469-0303535
Client Ref. No.: RAJ-001

IN THE CLAIMS:

This listing of claims replaces all prior versions, and listings, of the claims in the application:

1. - 16. (Canceled)

17. (Original) A method of forming a semiconductor microstructure, the method comprising:

positioning a substrate containing an initial dielectric layer in a process chamber; flowing a process gas comprising an oxygen-containing gas in the process chamber;

and

forming an oxide layer with high thickness uniformity, the oxide layer being formed between the initial dielectric layer and the substrate in a self-limiting oxidation process, wherein the partial pressure of the oxygen-containing gas in the process chamber is less than about 50 Torr.

18. (Original) The method according to claim 17, wherein the initial dielectric layer comprises at least one of an oxide layer, an oxynitride layer, an nitride layer, and a high-k layer.

19. (Original) The method according to claim 18, wherein the oxide layer comprises SiO_2 .

20. (Original) The method according to claim 18, wherein oxynitride layer comprises SiO_xN_y .

21. (Original) The method according to claim 18, wherein the nitride layer comprises silicon nitride.

22. (Original) The method according to claim 18, wherein the high-k layer comprises at least one of HfO_2 , ZrO_2 , Ta_2O_5 , TiO_2 , Al_2O_3 , and HfSiO .

Atty Dkt. No.: 071469-0303535
Client Ref. No.: RAJ-001

23. (Original) The method according to claim 17, wherein the process chamber pressure is less than about 40 Torr.

24. (Original) The method according to claim 17, wherein the oxygen-containing gas comprises O₂.

25. (Original) The method according to claim 24, wherein the process gas further comprises N₂.

26. (Original) The method according to claim 17, wherein the process gas further comprises an inert gas.

27. (Original) The method according to claim 26, wherein the inert gas comprises at least one of Ar, He, Ne, Kr, Xe, and N₂.

28. (Original) The method according to claim 17, wherein the substrate temperature is between about 500° C and about 1000° C.

29. (Original) The method according to claim 17, wherein the substrate temperature is about 700°C.

30. (Original) The method according to claim 17, wherein the process chamber pressure is less than atmospheric pressure.

31. (Original) The method according to claim 17, wherein the process chamber pressure is less than about 50 Torr.

32. - 54. (Canceled)